REMARKS/ARGUMENTS

Claims 1 - 72 are pending.

Claims 73 and 74 were rejected under 35 U.S.C. § 101. Claims 73 and 74 have been canceled without prejudice or disclaimer.

Claims 1, 4 - 7, 9, 10, 14 - 17, 27, 28, 31 - 34, 36 - 38, and 42 - 45 were rejected under 35 U.S.C. § 102(e) based on *Murai*, U.S. Patent No. 5,966,377.

Claims 8, 18, 19, 23 - 26, 35, 46 - 48, 51 - 55 were rejected under 35 U.S.C. § 103(a) in view of *Murai*.

Claims 73 and 74 were rejected under 35 U.S.C. 103(a) in view of *Smith et al.*, U.S. Patent No. 6,037,835.

Claims 2, 3, 11 - 13, 20, 21, 29, 30, 39 - 41, and 50 were rejected under 35 U.S.C. § 103(a) in view of *Murai* and *Mahany*, U.S. Patent No. 6,018,555.

Claims 56, 57, 60 - 66, and 69 - 72 were rejected under 35 U.S.C. § 103(a) in view of *Murai* and *Umeda et al.*, U.S. Patent No. 5,581,547.

Claims 58, 59, 67, and 68 were rejected under 35 U.S.C. § 103(a) in view of *Murai*, *Umeda et al.*, and *Mahany*.

Consideration of Earlier Filed IDS

A review of the Office action shows that an IDS mailed January 17, 2001 has not been considered. Enclosed herewith as Exhibit A is a photocopy of the postcard submitted with the IDS and stamped by the Patent Office, indicating the Patent Office had received the IDS January 22, 2001. Exhibit B is a printout from PAIR, showing receipt of an IDS on January 22, 2001. Exhibit C is a photocopy of the IDS transmittal letter and references that were mailed on January 17, 2001. Consideration of the enclosed references is respectfully requested.

PTO-892 Form

Umeda et al. was cited in the PTO-892 form, and was cited as a reference in the Section 103 rejections of claims 56 - 72. However, the rejection details make reference to a U.S. Patent issued to *Wildauer et al.* A search of the USPTO database revealed that U.S. Pat. No.

5,903,555 is issued to *Wildauer et al.* From a review of the rejection details, it appears that the proper reference for the Section 103 rejections is in fact *Wildauer et al.* The Examiner is respectfully requested to enter a PTO-892 form into the record that identifies U.S. Pat. No. 5,903,555 to *Wildauer et al.*

As to the *Umeda et al.* reference, there is no indication that the reference has been considered though it is listed in the PTO-892 form accompanying the instant Office action, and mentioned in the rejection of claims 56 - 72, but not referred to in the detailed discussions. The Conclusion section in paragraph 10 of the Office action indicates that only *Sunaga* (U.S. Pat. No. 6,381,233) was made of record but not relied on. Consideration of the *Umeda et al.* reference therefore is respectfully requested.

The Present Invention

The present invention relates to multiple access data communication. Aspects of the present invention include receiving a data sequence, producing a spread signal from the data sequence, and transmitting the spread signal to a base station; where the spreading code "spans a period of time which exceeds the time span of a data symbol," where the foregoing are performed "in a first transmitter among a plurality of transmitters whereby the base station receives a transmitted spread signal from each of the transmitters," and where the foregoing are performed by the first transmitter "absent any synchronization with the other transmitters." *Claim 1.* Kindly see also independent claims 9 and 19.

Further aspects of the present invention include receiving a data sequence, producing a spread signal from the data sequence, and transmitting the spread signal to a base station; where the spreading code "does not repeat during the step of modulating the data sequence," where the foregoing are performed "in a first transmitter among a plurality of transmitters whereby the base station receives a transmitted spread signal from each of the transmitters," and where the foregoing are performed by the first transmitter "absent any synchronization with the other transmitters." *Claim 27.* Kindly see also independent claim 36. Independent claim 47 as originally filed recites, "providing plural transmitters."

Still other aspects of the present invention include a system comprising a plurality of transmitters and a receiver, where each transmitter comprises an input component to receive data sequences, a memory having a spreading code that "comprises more than g chips, where g is the processing gain," and a transmission component for transmitting a spread signal "wherein the spread signal is transmitted in asynchronous manner relative to the other transmitters." *Claim 56.* See also claim 65.

For the reasons set forth below, the amended independent claims are believed to be allowable over the cited art. The dependent claims are believed to be allowable over the cited art based on the allowability of their respective base claims.

"base station receives a transmitted spread signal from each of the transmitters"

The present invention is directed to "a multiple access method" including "transmitting the spread signal to a base station" wherein the transmitting is "performed in each transmitter among a plurality of transmitters, whereby the base station receives a transmitted spread signal from each of the transmitters." *Claim 1.* See also independent claims 9, 19 (as originally filed), 27, 36, 47 (as originally filed), 56, and 65 (as originally filed).

Murai shows in Fig. 2A a transmitter "is used as a base station, and the receiver as shown in FIG. 2B is employed as a mobile station." *Col. 14, lines 22 - 24.* The base station shown in Fig. 2A includes a multiplexer (10) for receiving control data and transmitted data of multiple users. *Id at line 25.* The base station further includes a spreading modulator (20) to produce spectrum-spread data from the multiplexed data. A carrier modulator (30) and RF converter (40) produce a signal that can be transmitted.

Murai discloses a single transmitter (base station of Fig. 2A) that transmits a multiplexed signal, whereas the present invention includes transmissions from "among a plurality of transmitters, whereby the base station receives a transmitted spread signal from each of the transmitters." *Claim 1. Murai* discloses only a single transmitter as compared to "a plurality of transmitters" as recited in claim 1. *Murai* discloses a base station (Fig. 2A) that transmits, as compared to "the base station receives a transmitted spread signal from each of the

transmitters" as recited in claim 1. For at least this reason, *Murai* does not anticipate the present invention as recited in the amended independent claims.

Wildauer et al. disclose "[a] method and an apparatus are provided for transmission of band limited QPSK data which is orthogonal direct-sequence spread using a BPSK sequence which preserves the band limiting even with subsequent amplification by non-linear amplifiers." *Abstract. Wildauer et al.* disclose a modulation technique for minimizing out of band emissions and thus do not teach or suggest the multiple access aspects of the present invention as recited in the amended independent claims.

Mahany discloses "[a] network ... which utilizes modified preambles in a communication network to [facilitate] antenna diversity and multipath compensation." *Abstract. Mahany* does not teach or suggest the multiple access aspects of the present invention as recited in the amended independent claims.

Smith et al. disclose a receiver that incorporates "a mechanism by which [the] receiver may automatically detect and adapt itself to the modulation that a transmitter has applied to generate a modulated information waveform." *Col. 1, lines 15 - 19.* As understood, *Smith et al.* describe a self-adapting demodulator and thus do not teach or suggest the multiple access aspects of the present invention as recited in the amended independent claims.

"absent any synchronization with the other transmitters."

The present invention is directed to a multiple access method including producing and transmitting a spread signal from among a plurality of transmitters to a base station. An aspect of the invention is that the producing and transmitting is "performed in each transmitter absent any synchronization with the other transmitters." *Claim 1, and claim 65 as originally filed.* See also independent claims 9, 19, 27, 36, 47, and 56.

Murai describes a multiplexing method, and in Fig. 2A shows a base station in which a multiplexer 10 receives control data and transmitted data of multiple users to produce a multiplexed signal. *Col. 14, line 25.* The transmitted data of each user contained in the multiplexed signal is inherently synchronous with the transmitted data of the other users by virtue of being multiplexed at a single transmitter with the data of the other users. Therefore,

Murai does not teach producing and transmitting is "performed in each transmitter absent any synchronization with the other transmitters."

Umeda et al. describe a code division multiple access (CDMA) method wherein the mobile stations "randomly set delay amounts for each message to be sent, on the basis of the timing of a symbol received from a base station, and delay transmission signals for time intervals corresponding to the delay amounts." *Abstract.* As described with respect to Fig. 4 of *Umeda et al.*, a base station transmits a timing signal t_{sy} wherein the signal to be transmitted is delayed by an amount relative to that timing signal. *Col. 6, lines 17 - 42 generally, lines 22 - 25 and lines 37 - 38 in particular.*

By comparison, the present invention as recited in claim 1, for example, includes producing and transmitting performed in each transmitter absent any synchronization with the other transmitters. *Umeda et al.* do not teach or suggest this aspect of the invention because their mobile stations transmit "on the basis of the timing of a symbol [t_{sy}] received from a base station."

Sunaga describes a transmitter used in a CDMA mobile communication system. *Abstract.* The transmitter in a base station transmits its pilot signal in an intermittent manner to reduce interference effects on a receiver. *Col. 4, lines 1 - 11 and lines 32 - 40. Sunaga* does not teach or suggest transmitting a spread signal from among a plurality of transmitters to a base station wherein producing and transmitting the spread signal is performed in each transmitter absent any synchronization with the other transmitters.

"multiple access"

The present invention as recited in the pending claims is directed to "a multiple access method." *Claim 1, for example. Murai* was cited for teaching a "multiple access" communication technique. Respectfully, however, this is incorrect. *Murai* discloses a multiplexing technique. Submitted herewith as Appendix C are photocopies of selected pages from a textbook titled "Satellite Communications" by Pratt and Bostian (1986, John Wiley & Sons). In Chapter 5, the authors define multiplexing as "the process of separating the channels transmitted by a single earth station to prevent them from interfering with each other... ." *Page*

217 (underlining added). By comparison, in Chapter 6, "[multiple] access is 'the ability of a large number of earth stations to simultaneously interconnect their respective voice, data, teletype, facsimile, and television links through a satellite'." *Page 224 (underlining added).*

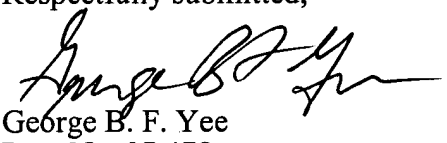
From the foregoing, it can be appreciated that one of ordinary skill in the art, in possession of a "multiplexing" technique such as taught by *Murai*, would not be motivated to obtain the "multiple access method" as recited in the pending claims. The present invention is motivated by the problem of improving the collision performance in a multiple access system. *Specification, page 3, lines 24 - 26.* In a multiplexing system such as that described by *Murai*, there are no such collisions. First, the transmission of the multiplexed signal is accomplished by a single piece of equipment, namely, the transmitter base station shown in Fig. 2A of *Murai*. There is no other transmitter of a signal with which a collision can occur. Second, the multiplexed signal is transmitted to multiple mobile stations; the flow is one to many (whereas, the flow in the present invention is a many-to-one relation). Each receiving station receives the same multiplexed signal, and so there is no collision. One of ordinary skill therefore would not be motivated by the multiplexing method of *Murai* to obtain the multiple access method of the present invention. *Murai* considered alone therefore does not suggest the multiple access method as recited in the pending claims. Moreover, the combination of *Murai* with any of the cited references does not suggest a multiple access method.

CONCLUSION

In view of the foregoing, all claims now pending in this Application are believed to be in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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